CANCER FACTS
National Cancer Institute • National Institutes of Health

Abnormal Moles Found To Increase Risk for Melanoma

For years, doctors have debated whether people with large, abnormal moles on their bodies have an increased risk of developing melanoma, a potentially deadly form of skin cancer that is diagnosed in about 40,000 Americans each year.

Now, a team of researchers report in the May 14 issue of the *Journal of the American Medical Association* (*JAMA*) that they have an answer. Based on the largest and most definitive study ever to examine this issue, the scientists found that people who have unusual moles are indeed at increased risk for melanoma. They discovered, in fact, that about half of the 738 people with melanoma in the study had numerous, clearly defined abnormal moles on their bodies. The investigators noted that the risk was greatest in people who also have extremely fair skin and heavy freckling, a sign of excessive sun exposure.

The scientists also report a strong risk of melanoma in people age 50 and older who had many abnormal moles on their bodies. Because people stop developing or lose moles by middle age, the investigators said this finding suggests a possible profile of middle-aged and older people who are most likely to develop melanoma.

Given the strength of their data, the researchers indicated that doctors might want to routinely evaluate the moles and freckling patterns of their patients, especially those with fair complexions. They said this would be an efficient and inexpensive way to identify people who should limit their time in the sun and receive regular testing for skin cancer. "Melanoma rates

are rising throughout the world," said Margaret Tucker, M.D., a scientist at the National Cancer Institute and the lead author of the paper. "This study provides a basic profile of people who are at most risk of developing melanoma, opening the door for earlier prevention and detection strategies."

An estimated one out of every 10 Americans has at least one abnormal mole, or dysplastic nevus (plural—dysplastic nevi). These moles are larger than common moles, with borders that are irregular and poorly defined. Dysplastic nevi also vary in color, ranging from tan to dark brown shades on a pink background.

The link between dysplastic moles and melanoma was first reported in the 1970s when scientists observed that members of a melanoma-prone family had numerous large, abnormal moles on their bodies. By the early 1980s, researchers also noted that some people without any family history of melanoma had dysplastic nevi, raising the question of whether these individuals are at increased risk for skin cancer.

Subsequent work has largely confirmed this association. In fact, several small studies have suggested that dysplastic nevi could account for 29 percent to 49 percent of nonfamilial melanoma. Other studies have indicated that people who have numerous abnormal moles could have as great as a sevenfold increased risk for melanoma.

However, the subject has remained controversial. Some investigators have stated that the definition of dysplastic nevi in several studies has been too imprecise, subject to bias, and generally inconclusive on the issue of melanoma risk. They have said that without standard criteria to diagnose dysplastic nevi, both in the clinic and under the microscope, clinicians would be hard pressed to differentiate between normal and dysplastic moles.

The article published this week in *JAMA* should help to settle the controversy. The study reported in the journal involved nearly 1,800 people—738 people diagnosed with melanoma and 1,030 people without the disease—who were examined primarily at the Melanoma Clinic of the University of California at San Francisco and the Pigmented Lesion Clinic of the University of Pennsylvania in Philadelphia. All participants agreed to an interview, a complete skin examination, photography of their most atypical moles, and possibly a biopsy of their most unusual mole.

In one of the study's key findings, the researchers report that clinicians independently agreed almost nine out of 10 times on whether a mole was normal or dysplastic. The study defined dysplastic nevi as being flat or partly flat, 5 millimeters or larger, and showing two or more of the following characteristics: variable pigmentation, asymmetric outline, and indistinct borders. "This study adds strong evidence to what several other smaller studies have already demonstrated, " said Tucker. "By scrupulously adhering to recognized diagnostic criteria, experienced clinicians will agree in most cases that a mole is dysplastic."

The researchers also found they could correlate the number and type of moles, both normal and abnormal, on a person's body with their risk of developing melanoma. For those with unusually high numbers of normal, but no abnormal, moles, the researchers calculated a twofold increased risk for melanoma. For those with numerous small and large normal moles, the risk for melanoma was four times higher than normal.

The risk associated with clearly defined dysplastic moles was much higher. The scientists estimated that individuals with a single dysplastic mole on their bodies have a twofold risk of developing melanoma. The risk rises to 14-fold in those with 10 or more abnormal moles. "The

fact that we could make this correlation strongly suggests that dysplastic nevi are precursor lesions that, with additional genetic damage, can trigger melanoma," said Tucker.

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://www.cancer.gov to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301–402–5874 and listen to recorded instructions.

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